

SOV/120-58-5-13/32

AUTHORS: Brish, A.A., ~~Dmitriyev~~, A.B., Kosmarskiy, L.N., Sachkov, Yu.N., Sbitnev, Ye.A., Kheyfets, A.B., Tsitsiashvili, S.S., and Eyg, L.S.

TITLE: A Vacuum Spark Switch (Vakuumnyye iskrovyye rele)

PERIODICAL: Priory i tekhnika eksperimenta, 1958, Nr 5, pp 53-58 (USSR)

ABSTRACT: The device consists of an evacuated glass envelope which contains 3 electrodes (see the general diagram of Fig.1). The principal discharge gap comprises a complex cathode consisting of two electrodes which form an auxiliary discharge gap. The two cathode electrodes are separated by means of a fine mica plate; when a triggering pulse is applied, a discharge is formed on the surface of the mica. Fig.2 shows 6 alternative solutions of the electrode systems of vacuum spark switches. Fig.3 shows photographs of actual switches (tubes 4, 5, 6 and 7) and photographs of 3 thyatrons (tubes 1, 2 and 3) for the purpose of comparison. The basic parameter of a switch is its anode voltage V_a , its operating current I and its triggering breakdown voltage V_{π} . The anode operating voltages up to 20 kV could be obtained with a discharge gap of 1 mm. The values of the

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A Vacuum Spark Switch

discharge current are determined primarily by the external parameters of the circuit in which the switch is employed. The currents can be very high since the tube is "extinguished" at a current of about 20 A. The energy required for the initiation of the main-gap breakdown is very small. Thus the switch can be triggered by the energy stored in a capacitance of about 5 μf , but the triggering voltage should be at least 1500 V. The switch is subject to some time delays. The overall delay is $T = t_1 + t_2 + t_3$, where t_1 is the time between the commencement of the triggering pulse and the inception of the trigger gap discharge; t_2 is the time lag between the commencement of the auxiliary discharge and the inception of the main-gap discharge, and t_3 is the formative time of the main gap discharge. These time delays are illustrated graphically in Fig.4. In actual tubes the formative times of the main discharge were of the order of 0.03 μs . The electrical characteristics of a spark

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A Vacuum Spark Switch

switch are affected by the number of switchings performed. This is illustrated in Fig.11, which shows the ignition voltage of the auxiliary gap as a function of the number of switchings N : it is seen that the voltage decreases with N . The paper contains 11 figures and no references.

SUBMITTED: November 15, 1957.

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21(4)	PHASE I BOOK INFORMATION	507/5583
	International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958.	
	Doklady sovetskikh uchenykh: yadernyye reaktory i yadernaya energiya. (Reports of Soviet Scientists: Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Krasnaya slip inserted. 8,000 copies printed.	
	General Eds.: M.A. Dolzhenko, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, M.I. Leipunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Kuvshinov, Corresponding Member, USSR Academy of Sciences, and V.S. Belyakov, Doctor of Physical and Mathematical Sciences, Ed.: A.F. Alshchikov. Tech. Ed.: I. Maslov.	
	Purpose: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.	
	CONTENTS: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 1 is devoted to atomic power plants of three parts. The first is devoted to the construction of nuclear reactors in the Soviet Union; the second to experimental and theoretical research; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Boryatin is the science editor of this volume. See 507/5081 for titles of all volumes of the set. References appear at the end of the articles.	
	Mostovoy, V.L., V.S. Dikarev, M.B. Yegorov, and Yu. S. Saltykov. Measuring Neutron Spectra in Uranium Water Lattices (Report No. 2152)	546
	Krasin, A.K., B.G. Dubovskiy, M.M. Lentsov, Yu. Yu. Glazkov, K.E. Gochurov, A.Y. Krasov, L.A. Gerasimov, V.Y. Vasiliev, Ye. I. Lyutskiy, and A. V. Gerasimov. Studying the Physical Characteristics of a Beryllium-moderator Reactor (Report No. 2146)	555
	Calman, A.D., S.A. Krasovskaya, A.P. Rudik, Yu. O. Abor, V.P. Shilin, and P.A. Kuchinskaya. Critical Experiment on an Experimental Heavy-water Reactor (Report No. 2036)	570
	Marchuk, G.I., V. Ye. Pukhov, Ye. I. Popudalova, V.V. Semlov, I.P. Tyuterev, S.T. Platonova, and G.I. Drushnina. Certain Problems in Nuclear Reactor Physics and Methods of Calculating Them (Report No. 2151)	588
	Singutskiy, G.V. and V.N. Semenov. Determination of Control Rod Effectiveness in a Cylindrical Reactor (Report No. 2149)	613
	Gelfand, I.M., S.M. Yermakov, A.S. Prolov, and M.M. Chentsov. Solving the Monte Carlo Method of Random Sampling for Solving the Kinetic Equation (Report No. 2141)	628
	Lalestin, M.I. Neutron Distribution in a Heterogeneous Medium (Report No. 2189)	634
	Kuznetsov, M.V., A.V. Stepanov, and P.L. Shapiro. Neutron Thermalization and Diffusion in Heavy Media (Report No. 2148)	651
	Yevnik, A.I., V.S. Yermakov, and A.V. Lykov. Using the Onager Theory for Studying Neutron Diffusion in the Absorbing Media of Nuclear Reactors (Report No. 2224)	668
	Reider, D.L., S.A. Rudnik, A.A. Butakov, V.V. Levin, and V.V. Gerasimov. Studying the Spectral and Energy Distribution of Neutrons in Different Media (Report No. 2144)	674
	Smirnov, A.B. Boron Ionization Chambers for Work in Nuclear Reactors (Report No. 2034)	690
	Kirillin, V.A., and S.A. Ulybin. Experimental Determination of Specific Volumes of Heavy Water in a Wide Temperature and Pressure Range (Report No. 2471)	696

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AUTHORS: Dmitriyev, A. B., Tolchenov, Yu. M., Filatov, A. I.,
and Chaykovskiy, V. G

TITLE: Corona Counters of Strongly ionising particles
(Koronnyye schetchiki sil'noioniziruyushchikh
chastits)

PERIODICAL: Priory i tekhnika eksperimenta, 1959, Nr 3,
pp 35-40 (USSR)

ABSTRACT: A description is given of a number of corona counters designed on the basis of the work reported in Refs 3 and 4. The SAT-7 α - particle counter is shown in Fig 3. It consists of a glass envelope with a ferrochrome ring. A 10-11 μ thick mica plate is attached to this ring and forms the end-window of the counter. The ring serves as the output contact for the metallic cathode which is evaporated onto the glass and the mica. The anode is in the form of a hemisphere 1 mm in diameter (in Fig 3, 1 is the glass envelope, 3 is the anode, 4 is the cathode, 5 is the ferrochrome ring, and 6 is the mica window). The SAT-8 counter is designed to measure the intensity of beams of strongly ionising particles. Its

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Corona Counters of Strongly Ionising Particles

cathode is in the form of a metallic cap made from ferrochrome which carries a mica window $3 \div 4 \mu$ thick and 4 mm in diameter. The anode is similar to that in the SAT-7. The slow neutron counter SNM-9 has the usual cylindrical geometry. Its cathode has a diameter of 18 mm and is made of stainless steel. The element sensitive to slow neutrons is a layer of amorphous boron deposited on the inner surface of the cathode. The thickness of this layer is greater than the range of the products of the reaction $B^{10} (n\alpha) Li^7$. All the three counters are filled with a mixture of neon with a small admixture of argon (not greater than 2%). The corona noise usually does not exceed 5 mV in SAT-7 15 mV in SNM-9 and 25 mV in SAT-8 counters and can be easily cut off with a suitable discriminator. The maximum amplitude of the working pulses is $100 \div 300$ mV which corresponds to a gas amplification coefficient of about $1000 \div 3000$. Fig 5 shows the dependence of the

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Corona Counters of Strongly Ionising Particles

α - particle pulses and noise on the supply voltage in the case of the SAT-7 counter. Best results are obtained with a load of $5 \times 10^8 \div 1.10^9$ ohm. With such load resistances, the voltage ranges are $450 \div 1000$ and $700 \div 2500$ volts for the SAT-8 and the SNM-9 counters respectively. The plateau slope is practically zero. In the case of the SAT-7 counter a 1 Meg resistance is sufficient and the length of the plateau is $300 \div 450$ volts. The counters have a resolving time of about 1μ sec. The efficiencies are as follows:-
SAT-7, $25 \div 30\%$ (uncollimated 5 Mev alpha particles),
SAT-8, 100% (uncollimated 2 Mev alpha particles),
SNM-9, 0.25% (thermal neutrons).
L. S. Eyg, L. K. Pyatibokov, V. I. Vinogradov, V. I. Popov, V. T. Fedoseyev, V. N. Korneyev and L. A. Fomina are thanked for their assistance.

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Corona Counters of Strongly Ionising Particles

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There are 7 figures and 8 references, 5 of which are
Soviet (1 a translation from English), and 3 English.

SUBMITTED: April 25, 1958

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SOV/120-59-3-9/46

AUTHORS: Dmitriyev, A. B., Peskov, D. I., Kheyfets, A.B. and
Chaykovskiy, V. G.

TITLE: Dose Characteristics of Low Voltage Halogen Counters
(Dozovyye kharakteristiki nizkovol'tnykh galogennykh
schetchikov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 3,
pp 47-49 (USSR)

ABSTRACT: The dose characteristics of the low voltage halogen
counters STS-1, STS-2, STS-5, STS-6, STS-8, SGS-5,
SGS-6, SBT-10 and SGS-7 have been measured and are now
reported. The parameters of the first six counters
were given by Dmitriyev (Ref 2, a review paper). The
SGS-6 counter is similar to the SGS-5 but its cathode
has a longer working length. The SBT-10 is designed
to detect soft β -radiation and has a 30 cm² mica window.
It consists of ten sections placed in a common envelope.
The cathode of each section is in the form of a half-
cylinder, 5 mm in radius. The anode of each section
is 55 mm long and has a separate output terminal. In
the SGS-7 counter the cathode and the anode are in the
form of discs 10 mm and 0.5 mm in diameter, respectively.

Card 1/4 The gap between the discs is 1 mm. The electrical

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Dose Characteristics of Low Voltage Halogen Counters

parameters (threshold, length and slope of the plateau) of SBT-10, SGS-6 and SGS-7 are analogous to the parameters of all the low voltage halogen counters described in Ref 2. Table 1 gives the main parameters of the counters. The first column gives the type of the counter, the second column the cathode diameter in mm and the third column the working length of the anode in mm. The counting rate was measured using the PS-10000 meter, the input sensitivity being 0.1 V and the resolving time 1 μ sec. The irradiation was carried out using Co^{60} sources whose activity was 0.01-5 Ra g equiv. The dose was determined to within $\pm 10\%$. In the experiments the SBT-10 counter was connected as shown in Fig 1, while all the remaining counters were connected as shown in Fig 2. The dose characteristics and the plateau slope were determined using $R = 10^6$ Ohm. Figs 3 and 4 show the dose characteristics of the above counters measured at the working voltage. It is clear that in the majority of the counters there is a maximum counting rate on the dose characteristic.

Card 2/4 This is explained by the considerable reduction in the

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Dose Characteristics of Low Voltage Halogen Counters

pulse height at large counting rate. Under these conditions the potential difference across the counter is not fully established. Since halogen counters give pulses with unequal amplitudes (Ref 3) it follows that some of the pulses may fall below the threshold of the detecting device. Table 2 gives the dose characteristics of the counters, where column 1 gives the type of the counter, column 2 the dose range in $\mu\text{r}/\text{sec}$, column 3 gives the counting rate at the appropriate dose in pulses/sec and column 4 the maximum counting rate in pulses/sec. Table 3 gives the dependence of the plateau slope on the dose, in which the first column gives the dose in $\mu\text{r}/\text{sec}$ and the second and third columns give the plateau slope in percent/Volt for the STS-5 and SGS-5 counters, respectively (the headings of columns 4, 5 and 6 are the same as those of 1, 2 and 3). Table 4 gives the resolving time of the counters. Column 1 of this table gives the type of the counter, columns 2 and 3 the resolving time in μsec at 100 pulses/sec and at maximum counting rate, respectively (columns 4, 5 and 6 have the same headings as 1, 2 and 3). The load resistance has a

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Dose Characteristics of Low Voltage Halogen Counters

great effect on the dose characteristics (Figs 5 and 6, in which the curves are plotted in ascending values of the load resistance). In the detection of large doses, the anode voltage must be well stabilized because in this case the plateau slope is considerably increased. It is noted that the plateau slope and the character of its change with increasing counting rate differs from counter to counter since it largely depends on the technology of manufacture and the conditions under which the counter is used. However, it follows from Table 3 that the plateau slope increases with increasing dose (i.e., increasing counting rate). There are 6 figures, 4 tables and 4 Soviet references, one of which is a translation from English.

SUBMITTED: April 4, 1958

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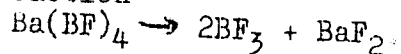
AUTHORS: Dmitriyev, A. B., Vorob'yev, M. G., Kosmarskaya, L.G.
and Chipurenko, N. I.

TITLE: The Construction of Boron Ionization Chambers
(Konstruktsiya bornykh ionizatsionnykh kamer)

PERIODICAL: Priory i tekhnika eksperimenta, 1959, Nr 3,
pp 59-62 (USSR)

ABSTRACT: A description is given of the following ionization chambers, all of which are designed to detect slow neutrons from the ionization due to the reaction $B^{10}(n,\alpha)Li^7$: the KN series (filled with BF_3), the KNT series (solid boron and argon gas) and the KNK series (compensated for the effect of the γ -background).
1) The KN-50 chamber. Fig 1 shows a photograph of this chamber. The electrodes consist of four coaxial tubes, 12, 22, 32 and 42 mm in diameter, made from nickel foil, 0.1 mm thick, and in electrical contact with each other. It is filled with BF_3 gas at 600 mm Hg, the working volume being 370 cm³. The gas is obtained from the reaction

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The Construction of Boron Ionization Chambers

Fig 3 gives the volt-ampere characteristics of the chamber when the latter was irradiated in the reactor channel. The saturation current at 500 V is 0.045 $\mu\text{amp/cm}^2$.

2) The KNT-52 chamber. This chamber is in the form of a two-electrode system placed in a hermetically sealed steel cylinder. The cylinder is filled with argon at a pressure of 6 atm. Each electrode (Fig 4) consists of 30 discs, 43 mm in diameter, placed parallel to each other. The discs have slots through which supports for electrodes of opposite sign can be inserted. The distance between the plates of opposite signs is 1.6 mm and the disc thickness is 0.4 mm. Boron is deposited on either side of each disc (except for the end discs), the total area covered in this way being 950 cm^2 . The insulation of the terminals at 300°C is 10^9 Ohms. Amorphous boron is used. The argon gas is 0.001% pure. The electrical characteristics of the chamber were described by Dmitriyev (Ref 3). The working voltage is 500 V and the working current 350 μamp .

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The absolute sensitivity of the chamber was found to be

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The Construction of Boron Ionization Chambers

2×10^{-14} amp/neutron/cm² sec.

3) The KNK-53 and KNK-52 chambers. The counters belonging to the KNT series have an appreciable sensitivity to γ -radiation. Thus, for example, the KNT-52 counter has a γ -sensitivity of 3×10^{-11} amp/r/hr. To reduce this γ -ray sensitivity the KNK series uses an additional compensating ionization chamber which is not neutron sensitive. The basic design of the chamber and the appropriate connections are shown in Fig 5 in which 1 is the envelope, 2 is the high voltage electrode of the γ -compensating part of the chamber, 3 is the high voltage electrode of the boron part of the chamber, 4 is the collecting electrode, 5 is the boron deposit and 6 is the measuring instrument. The electrode assembly of the KNK-53 counter consists of a system of alternate boron and compensating sections. Each electrode consists of a collection of discs, 43 mm in diameter. Fig 6 illustrates this scheme and Fig 7 shows a photograph of the electrode assembly. There is a total of 164 discs and the area of the boron covered discs is 1750 cm². A mixture of He + 1% N₂ at 6 atm is used

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The Construction of Boron Ionization Chambers

as the working gas. The nitrogen enables the breakdown voltage to be increased to 2 kV. The sensitivity of γ -radiation is found to be 3.4×10^{-13} amp/r/hr, while the sensitivity to slow neutrons is 4×10^{-14} amp/neutron/cm² sec. Yu. G. Nikolayev suggested the KNK-52 chamber. The KNK-52 is very similar to the KNK-53 except for the fact that the distribution of the boron and the compensating cells is asymmetric so that the sensitivity of the electrode system to γ -radiation depends on the geometry of the radiation field. There are 7 figures and 3 Soviet references.

SUBMITTED: April 4, 1958

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Dmitriyev, A.B.

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E032/E514

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AUTHOR: Dmitriyev, A.B.

TITLE: A Variable Pressure Differential Gamma Chamber 19

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No 3, pp 42-44

ABSTRACT: The chamber is shown in Fig 1. It consists of three steel tubes 50, 85, and 130 mm in diameter respectively. The wall thickness is 1 mm throughout. The inner surfaces of the tubes are covered by a polyethylene sheath 1 mm thick which serves as the insulation of the electrodes. The space between the tubes having diameters of 50 and 85 mm forms a chamber containing light materials. Its electrodes are graphite deposits on the polyethylene sheath. The space between the tubes having 85 and 130 mm diameters forms a chamber including heavy materials. Its electrodes are in the form of lead foil 0.07 mm thick. The electrode leads are taken out through glass-metal seals. The 85 mm diameter tube separates the two parts of the chamber. The outer part was evacuated and then filled with argon and sealed off, while the central part was connected

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A Variable Pressure Differential Gamma Chamber

to a gas container filled with argon (after evacuation) through regulation valves which enabled the pressure to be varied. The electrodes on the 50 and 130 mm diameter tubes were high voltage electrodes (+500 and -500 V). The electrodes on the 85 mm tube were collecting electrodes and were connected to a d.c. amplifier having an input resistance of 10^{10} ohm. The radioactive isotopes giving rise to radiations of different energy were placed in the central tube. The gas pressure in the sealed-off part was 70 cm Hg while the pressure in the other part was adjusted until the measuring instrument showed zero current from the collecting electrode when a specimen emitting gamma radiation of given energy was placed in the central tube. When the specimen was replaced by another, the current compensation was no longer fulfilled since a change in the energy of the radiation has different effects on the sensitivity of the two sections of the counter. In this way an unambiguous relation was obtained between the energy

Card 2/3 of the gamma radiation and the gas pressure. The pressure

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A Variable Pressure Differential Gamma Chamber

was measured by a 25 atm manometer. Fig 2 shows the relation between the pressure (atm) and the gamma ray energy (MeV). As can be seen the instrument is most sensitive at about 0.3 MeV. In the energy region indicated in the figure, the spectral sensitivity was found to be between 3 and 50 atm/MeV. Energies can be measured to an accuracy between ± 30 and ± 7 keV. The calibrating isotopes employed are shown in the table on p 43 in which the third column gives the energy in MeV and the fourth the activity in μC . There are 2 figures, 1 table and 4 Soviet references. Acknowledgment is made to V. P. Kazakova for assistance in the experiments.

SUBMITTED: May 18, 1959

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20682

S/120/61/000/001/016/062
E032/E114

26. 2244

AUTHORS: Dmitriyev, A.B., and Vorob'yev, M.G.

TITLE: γ -Background Compensated Boron Trifluoride Chamber

PERIODICAL: Priory i tekhnika eksperimenta, 1961, No.1, pp.55-57

TEXT: A description is given of a BF_3 chamber compensated for γ -background. The chamber is designated KHK-54 (KNK-54). The sensitivity of the chamber for thermal neutrons is 5×10^{-13} A/neutron/cm² sec, while sensitivity to γ -rays can be reduced practically to zero. In contrast to the previous models, the boron filled and compensating parts are separate. The BF_3 -filled part of the chamber is shown in Fig.2. It consists of a high-voltage anode 1 made of tubes 44 and 26 mm in diameter, and a collecting electrode 2 consisting of tubes 35 and 18 mm in diameter. The compensating part of the chamber is formed by the high-voltage cathode 3 (7.2 mm in diameter) and the collecting electrode (18 mm in diameter). The collector-electrode tube separates the BF_3 -filled and compensating parts. The complete sealing off of the two parts is achieved by means of the ceramic-to-metal seals 4. The length of the electrode system is Card 1/4

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EO32/E114

X

γ -Background Compensated Boron Trifluoride Chamber

322 mm. The chamber is evacuated and filled through the tubes 6. The upper and lower flanges 5 and 7 are welded to the stainless steel body 8 (50 mm in diameter). The electrodes are introduced through three insulators 10 (only one is shown in Fig.2). The chamber can be used at temperatures up to 300 °C. The boron part of the chamber is filled with BF₃ (85% B¹⁰-enriched) to a pressure of 2 atm. The compensating part is filled with krypton to a pressure of about 6.5 atm. The γ -ray sensitivity is compensated continuously by adjusting the voltage on the cathode (H.S. McCreary and R.T. Bayard, Ref.3). Fig.3 shows the current from the chamber as a function of the neutron flux in arbitrary units for anode voltages of 500 V and 1000 V. There are 3 figures, 1 table and 3 references: 1 Soviet and 2 English.

SUBMITTED: January 14, 1960

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EO32/E114

γ -Background Compensated Boron Trifluoride Chamber

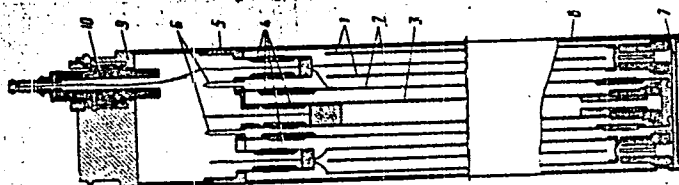


Fig. 2

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γ -Background Compensated Boron Trifluoride Chamber

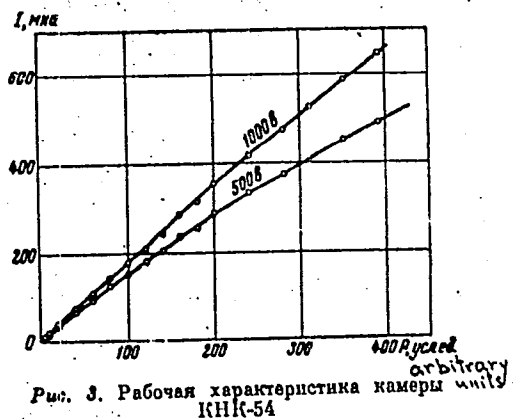


Fig. 3

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E194/E184

AUTHORS: Dmitriyev, A.B., and Leven-Fisher, N.P.

TITLE: A Centralised Pumping System for Vacuum Installation

PERIODICAL: Priboiy i tekhnika eksperimenta. 1961, No. 1, pp. 166-169

TEXT: In laboratories using vacuum equipment it is usual to provide one backing pump for every two diffusion pumps; this means having a great number of rotary vacuum pumps. A centralised main pumping system has many advantages but can only be used if appropriate protective devices are provided. The present paper describes the construction of and operating experience with centralised pumping systems provided with emergency valves and a control system designed to ensure satisfactory independent operation of the various equipment requiring vacuum. Two sets of pipelines each 30 m long are connected to the rotary pumps. One of these lines is intended for preliminary reduction of the pressure from atmospheric to 6×10^{-2} mm Hg. The pump on this line can reduce the pressure at one or two positions to a pressure of 4×10^{-2} mm Hg in four minutes, and to reduce this time to 1 min an ejector oil pump can be applied and later by-passed.

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A Centralised Pumping System for Vacuum Installation

The other vacuum line is intended for backing-up the vapour pumps to maintain a vacuum of about 1×10^{-2} mm Hg on all the vacuum installations connected to it. The two lines employ different pumps and there is one spare. The regular pumping line contains a number of emergency shut-down valves which automatically disconnect positions when the vacuum is worse than 6×10^{-2} mm Hg. The valves are provided with a signalling box with neon lamp indicator. The usual formulae were used to determine the size of the lines and details are given. The 15 metre working section of the vacuum lines is assembled of sections 3.6 m long connected together by flanges with rubber liners. Fig.2 shows a diagram of an emergency valve. The valve may be opened manually by the lever 1 operating a cam 2. The operating principles of the valve are described. In the open position of the valve the cam presses on the spring closing the switch which connects the winding of the electromagnet to the pick-up. The rough pumping lines have similar valves but without electromagnet, which are operated manually operating a signal lamp on the control panel. The emergency valve

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A Centralised Pumping System for Vacuum Installation

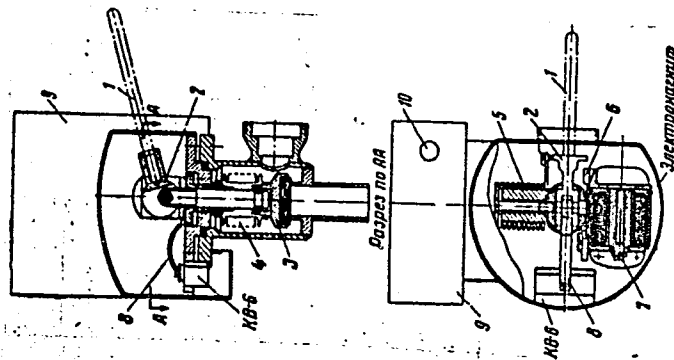
control system consists of pick-ups to indicate emergency pressure increase, signal boxes installed on each emergency valve and a supply unit which is common to the whole system. The pressure pick-up consists of a two-electrode discharge tube 105 mm long and 65 mm in diameter. The electrodes are in the form of cups 40 mm deep and they are joined together by a glass ring 30 mm wide. With electrodes of this shape the range of working pressures of the pick-up is considerable. If the pressures alter rapidly the device operates more reliably than with flat electrodes. The emergency valve supply unit has a rectifier with electronic stabilisation giving two voltages, 200 V for the signal lamps and 650 V for the pick-ups and magnetic coils. The system commenced operation in April 1955 and about 20 vacuum positions were connected to the line. In service the vacuum in the main pumping line is maintained at a pressure of 6×10^{-3} mm Hg. In the first line, one minute after connecting a position with a volume of 2 litres at atmospheric pressure the vacuum reaches 4×10^{-2} mm Hg and on further pumping the vacuum is improved to 1×10^{-3} mm Hg.

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A Centralised Pumping System

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The oil in the ejector pump is changed every three months if mineral oil is used and less frequently if silicone oil is used. The system has proved reliable in operation. There are 5 figures and 2 Soviet references.
SUBMITTED: December 12 1959



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Fig. 2

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S/120/61/000/003/011/041
E032/E314

21.6000

AUTHORS: Shevyrev, V.S. and Dmitriyev, A.B.

TITLE: Volt-ampere Characteristics of Cylindrical
Ionisation Chambers Filled with Air At Atmospheric
Pressure

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, No. 3,
pp. 75 - 78

TEXT: This is a continuation of work reported by the first
of the present authors in Ref. 4 (PTE, 1960, No. 6, p. 35).
The three ionisation chambers investigated in the present work
are shown schematically in Fig. 1. The chambers are in the
form of coaxial cylindrical capacitors with aluminium elec-
trodes 1 and 2 and earthed guard rings 3. Moreover,
the chambers 1 and 3 incorporate additional electrodes 4, 
which are in the form of aquadag deposits on perspex rods
having the same diameters as the collecting electrodes. These
are used to maintain the uniformity of the field. The
dimensions of the chambers are indicated in Fig. 1 (in mm).
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Volt-ampere Characteristics ... S/120/61/²⁷⁷⁰¹000/003/011/041
E032/E314

The notation of Fig. 1 is as follows: 1 - collecting electrode; 2 - outer (high-voltage) electrode; 3 - brass guard ring; 4 - guard electrode (see above); 5 - insulator and 6 - coaxial cable. Table 1 gives further data on these counters: 1 - No. of chamber; 2 - radius of high-voltage electrode, a, cm; 3 - radius of collecting electrode, b, cm; 4 - volume of chamber, v, cm³. The ionisation currents were measured electrometrically, using the Townsend method, and directly with the aid of M-91 and M-193 microammeters. The chambers were connected to the measuring device by a coaxial cable 11.5 m long. The error in the ratio of the ionisation currents near to saturation ($f = i/i_{\text{sat}} > 0.9$) was $\pm 1\%$, while the error for lower degrees of saturation was $\pm 2\%$. Six series of experiments were carried out. The experimental conditions are summarised in Table 2 (1 - intensity, r/hour; 2 - activity of Co⁶⁰ source, Curies; 3 - equivalent distance between the electrodes, $a_{\text{equiv.}}$, cm; 4 - air temperature, °C; 5 - relative humidity of the air, %).

Card 2/4

Volt-ampere Characteristics ²⁷⁷⁰¹
S/120/61/000/003/011/041
EO32/E314

The results obtained are plotted in Fig. 2, which gives $f = i/i_{\text{sat}}$ as a function of $\psi d_{\text{equiv.}}^2 P/U$. Here, P is the intensity in r/sec , $d_{\text{equiv.}}$ is the equivalent distance between the electrodes and U is the voltage applied to the chamber. The dashed curves represent calculations based on the formulae of G. Imbó, P. Vittorzi (Ref. 2 - Geofis. pura e appl., 1955, 30, 113), Boag (Ref. 3 - Radiation dosimetry, ed. Hine and Brownell, 1958) and G. Mie (- Ann. Phys., 1904, 13, 857 - Ref. 6). These equations are summarised in Table 3 (1- author; 2 - limits of f ; 3 - type of equation). Eq. (5) in Table 3 refers to a plane-parallel geometry. It is found that the experimental points obtained in the present measurements are well represented by the Mie equation with $m = 35.8$ and the equivalent distance between the electrodes equal to 1.13 times the equivalent distance, as calculated from:

Card 3/4

Volt-ampere Characteristics S/120/61/000/003/011/041
E032/E314

$$d_{\text{equiv.}} = (a - b) \sqrt{\frac{a/b + 1}{a/b - 1} \frac{\ln a/b}{2}} \quad (1)$$

There are 2 figures, 3 tables and 8 references: 5 Soviet and 3 non-Soviet

SUBMITTED: June 15, 1960

Table 3:

Imbo and
Vittozzi (2)

Boag (3)

Mil (6)

(1) Автор	(2) Пределы примени- мости уравнения	Вид уравнения (3)
Имбо и Вит- тоцци [2]	$f \rightarrow 1$	$f = 1 - 1/8 m^2 (d_{\text{ЭНБ}}^2 \sqrt{P/U})^2 \quad (2)$
Боуг [3]	$0 \leq f \leq 1$	$f = 2 \left[1 + \sqrt{1 + 2/3 m^2 (d_{\text{ЭНБ}}^2 \sqrt{P/U})^2} \right]^{-1} \quad (3)$
Мл [6]	$f \leq 0,6$	$f = -0,4806 + \sqrt{0,231 + 1,95 [m d^2 \sqrt{P/U}]^{-1}} \quad (4)$
	$f \geq 0,7$	$f = [1 + 0,166 m^2 (d^2 \sqrt{P/U})^2]^{-1} \quad (5)$

Card 4/4

I 15542-63

FDS

ACCESSION NR: AP3005530

S/0115/63/000/007/0050/0053

AUTHOR: Shevyrev, V. S.; Dmitriyev, A. B.

TITLE: Current-voltage characteristics of parallel-plate ionization chambers

SOURCE: Izmeritel'naya tekhnika, no. 7, 1963, 50-53

TOPIC TAGS: ionization chamber, nitrogen-filled ionization chamber

ABSTRACT: Experimental studies of a laboratory-model ionization chamber (drawing supplied) with an 0.3-2.7 adjustable electrode gap and filled with nitrogen at pressures 1-27.4 atm are reported. Four series of tests were conducted with these ionization densities: 3.75×10^{-4} , 3.6×10^{-5} , 5.15×10^{-2} , 3.9×10^{-1} . The following recommendations are offered for calculating the current-voltage characteristics and for selecting the supply voltage: (1) On the basis of specified sensitivity and volume of the chamber, the necessary gas pressure can be determined from the formula given in the article; (2) An $I=F(E)$ curve is plotted from

Card 1/2

L 15542-63

ACCESSION NR: AF3005530

the known gas pressure and maximum dose rate, where I is the current loss and E is the electric field strength. (3) A curve $\psi(E)$ is plotted on the same graph, and the junction point of the two curves determines the minimum voltage necessary for linear operation of the chamber in the specified dose-rate range; (4) With the voltage value found, the current loss due to initial ion recombination is determined from the $I = F(E)$ curve, and also the extra chamber volume required to insure sensitivity is found. Orig. art. has: 2 figures, 8 formulas, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: NS

NO REF SOV: 004

OTHER: 013

Card 2/2

L 16551-65 EWT(m) AEDC(b)/SSD/AFWL/DIAAP

ACCESSION NR: A4044670

S/0120/64/000/004/0081/0084

AUTHOR: Dmitriyev, A. B.; Katyushina, V. V.; Sorokin, L. S. B

TITLE: Ionization chamber and counter for recording radiation in the
HL line

SOURCE: Priorye i tekhnika eksperimenta, no. 4, 1964, 81-84

TOPIC TAGS: ionization chamber, gas discharge counter, solar radiation measurement, night sky luminescence measurement, hydrogen L line radiation

ABSTRACT: A KFL-2 ionization chamber and an SFM-1 Geiger-Muller gas-discharge counter used in studies of solar radiation and night-sky luminescence are described. Both devices are intended for recording hydrogen radiation in the L line. The chamber consists of a stainless steel cylindrical frame 33-mm in diameter and flanges. Graphite coatings on mica plates serve as electrodes. A LiF window 10-mm in diameter is fixed in a copper cone. The chamber is filled with NO up to a pressure of 15 mm Hg. An ionization current saturation up

Card 1/3

I. 16551-65

ACCESSION NR: AP4044670

to 0.1 μ a is maintained with a 300v potential difference. The counter consists of a stainless steel tube 18-mm in diameter with both ends hermetically closed with Kovar discs. A LiF window 2.5-mm in diameter is hermetically sealed to the frame with epoxy cement. The counter is filled with a composition of 10 mm Hg of NO, 50 mm Hg of Ar, and 550 mm Hg of Ne. At a load resistance of 10 Mohm the sensitivity of the recording device is approximately 1v; normal operating voltage is 900v; the length of the counting rate characteristic plateau is more than 100v; this plateau has a considerable incline (0.25% per volt at a count rate of 6×10^4 pulses/min). The chambers were found to be basically sensitive to radiation wavelengths from 1100 to 1380A. Maximum sensitivity was found at 1200A. In all cases counter curve shapes coincided well with the ionization chamber curve, except for the region of 1200A where a certain diminution of counting speed occurred. Measured ionization chamber sensitivity was found to vary very little from chamber sample to sample and amounted to 7×10^{-2} electrons per photon, which was a few times less than the calculated value. Orig. art. has: 5 figures.

Card 2/3

I 16551-65

ACCESSION NR: AP4044670

ASSOCIATION: Institut prikladnoy geofiziki AN SSSR (Institute of
Applied Geophysics, Academy of Sciences, SSSR)

SUBMITTED: 16Aug63

ENCL: 00

SUB CODE: ES, NP

NO REF SOV: 001

OTHER: 002

Card 3/3

ZARETSKIY, Leonid Markovich; AVERICHEV, Yu.P., red.; DMITRIYEV,
A.B., red.

[Technical mechanics; a textbook] Tekhnicheskaya mekhanika;
uchebnoe posobie. Moskva, Prosveshchenie, 1965. 266 p.
(MIRA 18:5)

ACC NR: AP7001194

(A)

SOURCE CODE: UR/0407/65/000/05-/0045/0050

AUTHOR: Sedykin, F. V. (Tula); Dmitriyev, A. B. (Tula)

ORG: none

TITLE: Effect of electrochemical machining on the fatigue strength of metal

SOURCE: Elektronnaya obrabotka materialov, no. 5-6, 1965, 45-50

TOPIC TAGS: ^{METAL MACHINING} low carbon steel, abrasive ground steel, electrochemistry, ME-AL
SURFACE, ~~steel~~ fatigue strength, electrochemical machining effect/St.3 steel

ABSTRACT: Specimens of annealed low-carbon St.3 were electrochemically machined in a 15% NaCl aqueous solution or ground and tested for fatigue strength under a stress of 15, 18.5 or 20 kg/mm². The ground specimens sustained 51300, 78130 and 493766 cycles under respective stresses of 20, 18.5, and 15 kg/mm². The corresponding figures for electrochemically machined specimens were 72000, 100500, and 621000 cycles, i.e., 28, 22, and 21.5% higher because electrochemical machining leaves no plastically deformed surface layer, produces a better surface finish, and reduces the number of the centers of origin of microcracks. Electrochemical machining also removes the work-hardened surface layer and residual stresses, which increases the cyclic toughness of the metal and promote extinction of resonance vibrations. Orig. art. has: 8 figures, and 1 table.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 005/
Card 1/1

Bulk Done

IL'IN, Boris Afanas'yevich, dots., kand. tekhn. nauk; ALYSHEV,
I.F., dots., kand. tekhn. nauk, otv. red.; DMITRIYEV,
A.A., retsenzent; ZHUKOV, V.V., dots., kand. tekhn. nauk,
retsenzent; VASIL'YEVA, N.V., red.

[Theory of the design of forest roads; manual for students
of the Forestry-Engineering Department] Teoriia proektiro-
vaniia lesovoznykh dorog; uchebnoe posobie dlia studentov
lesoinzhenerenogo fakul'teta. Leningrad, Vses. zaochnyi
lesotekhn. in-t. Pt.2. 1964. 341 p. (MIRA 18:7)

L 22353-66 EWT(d)/EWT(m)/EWP(f)/EWP(c)/EWP(v)/T/EWP(k)/EWP(h)/EWP(l)/ETC(m)-6

ACC NR: AP6013300 IJP(c)

SOURCE CODE: UR/0413/66/000/008/0094/0094

INVENTOR: Dmitriyev, A. D.

ORG: none

TITLE: Semiautomatic stand for checking parts, such as turbine blades of turbojets, by using dye penetrant flaw-detection method. Class 42, No. 180841

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 94

TOPIC TAGS: turbojet turbine blade, turbine blade, quality control, turbine blade quality control, dye penetrant flaw detection, nondestructive testing

ABSTRACT: The proposed semiautomatic stand consists of a table, a part holder, mechanisms such as pneumatic cylinders to move the parts, elements to degrease and wipe the parts, nozzles to clean the parts with compressed air, dye sprayers, and a ventilated hood. To improve working conditions, productivity, and quality control, an intermittently rotating disc is mounted in the center of the table. Part holders are fixed on the disc and are provided with mechanisms to move the parts vertically and rotate them during their approach to the nozzles to be cleaned and dyed. In order to increase the air cleaning efficiency and to apply the dye uniformly, a variation of this stand is provided with a cam mechanism, whose driving link is connected with the air nozzles and dye sprayers imparting to them a horizontal reciprocating motion. Orig. art. has: 1 figure.

SUB CODE: 14/ SUBM DATE: 20Jan65/ ATD PRESS:UDC: 620.192.46:620

Card 1/1

4241

.179.111.2

[AV]

2

DMITRIYEV, A.D., inzhener.

Prefabricated shell rock floors. Biul.stroi.tekh. 10 no.11:14-15 Je '53.
(MLRA 6:8)

1. Odesskoye otdeleniye Teploelektroproyekt. (Floors)

~~IMITRIYEV, A.D.~~, dotsent; ULITSKIY, B.YE., dotsent; ZABOLCTNEV, A.M.,
assistant; AZOVSKIY, A.I., inzhener.

Bridge spans with external prestressed reinforcements having
lengthwise and crosswise members. Avt.dor. 18 no.8:22-23 D '55.
(MLRA 9:5)

(Bridges, Concrete)

DMITRIYEV, ALEKSEY DMITRIYEVICH

FAYN, Yakov Solomonovich, kandidat tekhnicheskikh nauk, dotsent; ~~DMITRIYEV, Aleksey Dmitriyevich, kandidat tekhnicheskikh nauk, dotsent;~~
~~SERGEYEV, A.P., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskiiy redaktor~~

[Examples of planning of tunnels for automobile roads] Primery
proektirovaniia avtodorozhnykh tonnelei. Moskva, Nauchno-tekhn.
izd-vo avtotransp.lit-ry, 1957. 186 p. (MIRA 10:9)
(Tunnels)

ONUFRIYEV , I.A., red.; BARSKOV , I.M., red.; ~~DMITRIYEV~~, A.D., red.;
MAKASHEV , S.D., red.; PEVZNER, A.S., red. izd-va; GILKINSON,
P.G., techn. red.

[Abridged stenographic report of the All-Union Conference on Construction, Moscow, 1958] Sokrashchennyi stenograficheskiy otchet.
Moskva, Gos. izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam,
1958. 334 p. (MIRA 11:10)

1. Vsesoyuznoye soveshchaniye po stroitel'stvu. Moscow, 1958.
(Construction industry--Congresses)

DMITRIYEV, A.D.
DMITRIYEV, A.D.; SOLOMIN, A.F.; MESHCHERYAKOV, L.I.

Moving a frame-type reinforced concrete bridge. Avt. dor. 21
no.2:14 F '58. (MIRA 11:2)
(Bridges, Concrete)

DMITRIYEV, A.D., dots., kand. tekhn. nauk; KOZHEVNIKOV, V.A., inzh.; ZABOLOTNEV,
A.M., inzh.; GLOTOV, B.A., inzh.

Using reinforced concrete bridges for 50 years without water-
proofing. Avt.dor. 22 no.2:18-19 F '59. (MIRA 12:2)
(Bridges, Concrete) (Waterproofing)

ALABYAN, K.S. [deceased]; BLOKHIN, P.N.; BOTVINKO, M.Ye.; DEVIATKOV, G.V.; DMITRIYEV, A.D.; YERSHOV, P.N.; ZAYTSEV, A.G.; KIBIREV, S.F.; KOSTYUKOVSKIY, M.G.; KUZNETSOV, B.T.; L'VOV, G.N.; MOGIL'NIY, A.I.; ORLOV, G.M., OVSYANNIKOV, K.L.; PROMYSLOV, V.F.; SMIRNOV, N.N.; SKACHKOV, I.A.; SOLOF-NENKO, N.A.; SUSNIKOV, A.A.; CHAGIN, D.A.; KUCHERENKO, V.A., obshchiy red.; GRISHMANOV, I.A., obshchiy red.; SVETLICHNIY, V.I., obshchiy red.; RUBANENKO, B.R., obshchiy red.; BARSKOV, I.M., red.; UDOD, V.Ya., red.izd-va; YUDINA, L.A., red.izd-va; GOLOVKINA, A.A., tekhn. red.

[Building practices in foreign countries; Northern Europe and German Federal Republic] Opyt stroitel'stva za rubezhom; v stranakh Severnoi Evropy i FRG. Po materialam otchetov delegatsii sovetskikh spetsialistov-stroitelei. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam, 1959. 598 p. (MIRA 12:12)

1. Predsedatel' Gosstroya SSSR (for Kucherenko). 2. Zamestitel' predsedatelya Gosstroya SSSR (for Svetlichnyy).
(Europe, Western--Building)

KORNEYEV, N.I., doktor tekhn. nauk; DMITRIYEV, A.D.; KALUSIN, V.F.,
kand. tekhn. nauk; GRIGOR'YEVA, G.A.

Rolling bimetallic titanium-niobium and aluminum alloy-titanium
sheets. Biul. tekhn.-ekon. inform. Gos. nauch.-essl. inst. nauch.
i tekhn. inform. 18 no.2:16-17 F '65.

(MIRA 18:5)

DMITRIYEV, A.D.; GLOTOV, B.A.; KIRILLIN, V.I.

Improving the durability of wooden bridges. Avt. der. 28
no.9:12,22,26 S '65. (MIRA 18:10)

124-57-1-901

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 122 (USSR)

AUTHOR: Dmitriyev, A.D.

TITLE: Approximate Solution of the Problem of the Infinite Plate on an Elastic Foundation Subjected to Axisymmetric Loading
(Priblizhennoye resheniye zadachi rascheta beskonechnoy plity na uprugom osnovanii pri osesimmetrichnoy nagruzke)

PERIODICAL: Tr. Saratovsk. avtomob. -dor. in-ta, 1955, Nr 13, pp 25-50

ABSTRACT: An approximate solution is offered for the problem of the calculation of an infinite plate supported by an elastic foundation and subjected to a concentrated load. The reactions of the elastic foundation are assumed proportional to the deflections of the plate. The deflection of the plate resulting from the action of a force P , the point of application of which is taken as the origin of the coordinates, is approximated by the expression:

$$w_x = w_0 (1 + 4x - 5x^2) e^{-4x}$$

Card 1/2

124-57-1-901

Approximate Solution of the Problem of the Infinite Plate (cont.)

where w_0 is the deflection under the action of the force and x is a dimensionless coordinate, equal to the ratio r/a , where r is the distance of a point from the origin of the coordinates and a is the distance from the same origin to the first point exhibiting a zero deflection. The magnitudes of w_0 and a are determined from the conditions of the minimal potential energy of the elastic system and the conditions of equilibrium. The further computations of the bending moments are performed according to the well-known formulas and do not offer any difficulties. A comparison of the results of such a calculation with the results of an exact solution indicates that the approximate solution affords adequate accuracy. Utilizing the method of superposition, the author investigates also the case of a uniform loading distributed over a circular area.

1. Plates--Deflection--Mathematical analysis 2. Approximate computations--Applications P. I. Klubin

Card 2/2

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 120 (USSR) SOV/124-57-7-8236

AUTHOR: Dmitriyev, A. D.

TITLE: Limiting-state Calculation of an Infinite Plane on an Elastic Foundation Subject to Axisymmetric Load Conditions (Raschet beskonechnoy plity na uprugom osnovanii pri osesimmetrichnoy nagruzke po predel'nomu sostoyaniyu)

PERIODICAL: Tr. Saratovsk. avtomob.-dor. in-ta, 1956, Nr 14. pp 152-161

ABSTRACT: Investigation is made of an infinite plate of constant thickness consisting of a homogeneous material and resting upon an elastic foundation. The plate is subjected to a load which is perpendicular to the plane of the plate and which is applied over the area of a circle of a very small radius. It is assumed that for both the elastic and the plastic strains the reaction of the elastic foundation at every point of the plate is proportional to the elastic deflection of the plate at the given point. The plastic strains of the plate are limited to a certain radius around the center of load application. The limiting state assumes that at the moment preceding the rupture the yield load is balanced by the internal elasto-plastic stresses acting within the boundary

Card 1/2

Limiting-state Calculation of an Infinite Plane on an Elastic Foundation (cont.) SOV/124-57-7-8236

of the radius of plastic strains as well as by the purely elastic internal stresses acting beyond the boundary of this radius. The problem is solved by the energy method. The ultimate load is determined by the solution of the variational equation of equilibrium of the plate in the limiting state. A formula is given for calculating the ultimate load of any function approximating the conditions above by expressing the deflection of an infinite plate consisting of any homogeneous material resting upon any kind of elastic foundation and possessing a yield point. As an illustration, determination of the ultimate load is made for an approximation function representing the solution of an analogous elastic problem obtained previously by the author.

Ye. A. Rayevskaya

Card 2/2

BOKUCHAVA, M.A.; KNYAZEVA, A.M.; SKOBELEVA, N.I.; DMITRIYEV, A.F.;
FRUIPZH, V.G.

Results of production testing of the new technology for black
tea. Biokhim.chain.proizv. no.7:12-24 '59. (MIRA 13:5)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.
(TBA)

BOKUCHAYA, M.A.; DMITRIYEV, A.F.; KORENYAKO, A.I.

Antibiotic properties of different types of tea. Biokhim. zhurn.
proizv. no.8:204-206 '60. (MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, i Institut mikro-
biologii AN SSSR, Moskva.
(TEA) (ANTIBIOTICS)

Dmitriyev, A.F.

AUTHOR BOKUCHAVA, M.A., SKOBLEVA, N.I., DMITRIYEV, A.F., 20-2-46/62
 TITLE Biochemical Changes in the Aromatic and Gustatory Substances, and the Quality of Tea.
 (Biokhimicheskiye izmeneniya aromaticeskikh i vkusovykh veshchestv i kachestvo chaya -Russian)
 PERIODICAL Doklady Akad.Nauk SSSR, 1957, Vol 115, Nr 2, pp 362-363 (U.S.S.R.)
 ABSTRACT It is generally known that during the drying of tea at ca. 85-95°C a loss in aroma takes place. According to investigations, about 75-80% of the essential oils formed during fermentation escape on that occasion. In order to retain these latter and to obtain an aromatic tea, the present work on lyophilic drying was done. Tab.1 shows that light-brown tea obtained from such a drying kiln possesses an intensive aroma, identical with that of fermented tea. Thus the lyophilic kiln-drying makes it possible to retain the aroma of the tea. Only little of volatile aldehydes is lost. The organoleptic analysis of this tea showed, however, that its aroma, in spite of its intensity, is not the aroma of black tea. The sample of lyophilically dried tea is quite dissimilar to black tea in its taste. It has the grassy, unpalatable taste of a raw leave. Additional drying at high temperature also gives the samples neither the color nor the aroma or other properties of black tea. These tests confirm the data earlier obtained by the authors on the formation of aroma during the heat-treatment of the tea leave. All this indicates the great importance of elevated temperatures for the formation of the quality of

Carã 1/2

Biochemical Changes in the Aromatic and Gustatory Substances, and the Quality of Tea. 20-2-46/62

black tea. During drying at high temperature the necessary transformations in the chemical composition of the leave take place. As a consequence develop the properties of tea which we like taste, aroma and color. Thus the kiln-drying at elevated temperature is a necessary and irreplaceable stage of operation. Simultaneously with the removal of moisture thermochemical processes take place under the influence of this high temperature which cause the formation of aromatic and gustatory substances. At this temperature the essential oils of the tea leave undergo certain transformations, indispensable for quality, which lead to the formation of the characteristic aroma of black tea. In the case investigated here the formation of essential oils of another qualitative composition takes place.
(2 tables, 6 Slavic references).

INSTITUTION Institut biokhimi im. A.N. Bakha Akademii nauk SSSR

PRESENTED BY OPARIN A.I., Member of the Academy, April 19, 1957

SUBMITTED

AVAILABLE Library of Congress. April 18, 1957

Card 2/2

USSR/Biology - Marine life

Card 1/1 Pub. 86 - 15/36

Authors : Dmitriyev, A. F.

Title : Submarine observations of the behavior of trepangs

Periodical : Priroda 44/6, page 96, Jun 1955

Abstract : An account is given of observations made on the sea bottom of the spawning habits of trepangs and their ways of protecting themselves against fish which prey on them. Illustrations.

Institution :

Submitted :

DMITRIYEV, A.F.; PERVOV, L.G.

Study of the correlation between signaling systems in
neuroses. Zhur. vys. nerv. anat. 11 no.6:979-984 N-D '61.
(MIRA 15:3)

1. Pavlov Institute of Physiology, U.S.S.R. Academy of
Sciences, Leningrad.
(CONDITIONED RESPONSE)
(NEUROSES)

SKAFA, P.V.; DMITRIYEV, A.G.

Hydraulic fracturing of coal seams. Podzem. gaz. ugl. no. 2:51-
59 '58. (MIRA 11:7)

1. Glavpodzemgaz i Vsesoyuznyy nauchno-issledovatel'skiy institut
Podzemgaz.

(Coal gasification, Underground)

Dmitriyev, A. G.

AUTHORS: Gromov, K., Ya., Dzhelepov, B. S., Dmitriyev, A. G. 48-12-3/15
Preobrazhenskiy, B. K.

TITLE: On the Decay-Scheme of Lu^{171} (O skheme raspada Lu^{171}).

PERIODICAL: Izvestiya AN SSSR, Seriya Fizicheskaya, 1957, Vol. 21, Nr 12,
pp. 1573-1575 (USSR)

ABSTRACT: The spectrum of the conversion-electrons of a lutetium-preparation which was separated from hafnium obtained in the deep splitting off on tantalum was here investigated. Some conversion-lines whose intensity decreased during a period of 7-8 days were obtained. The obtained value of the half-decay period and the taking into consideration of the genetic connection between lutetium and hafnium permitted clearly to ascribe this conversion-lines to lutetium 171. The lutetium-preparation separated from hafnium was many times weaker than those directly separated from tantalum. Therefore the most intensive and most favorably situated conversion-lines were determined in the former. Thus it may be stated that the transitions with $h\nu = 75,8$ and $90,6$ keV and the non-identified conversion-lines $E = 56,6; 57,9; 62,3$ keV, which were found in the spectrum of the Lu^{171} separated from hafnium belong to lutetium 171. The inverse fact, however, may not be

Card 1/3

On the Decay-Scheme of Lu^{171}

48-12-3/15

maintained: not discovered conversion-lines may either belong to lutetium 171 or to lutetium 172. Starting from the obtained data something can be said on the decay-scheme of Lu^{171} . The spin of the ground state of Yb^{171} was measured in reference 3 and is equal to $1/2$. The Lu^{171} -nucleus has 71 protons and 10 neutrons, therefore (reference 4) its spin must be the same as in Lu^{175} (71 protons and 104 neutrons), i.e. $7/2$. Thus an image is obtained which is very similar to the decay of Yb^{169} (spin $7/2$) in Tu^{169} (spin $1/2$). It would be justified to assume that the decay-scheme of Lu^{171} is also similar to that of the Yb^{169} -decay. In analogy with the decay-scheme of Yb^{169} a scheme of the rotation-band-levels of the ground state of Yb^{171} was set up. The experimental data are in very good agreement with this scheme. It is shown that the Lu^{171} -decay apparently is mainly spent on high excitation-states with a quantum-number $K > 1/2$ and that it is very probably that all or part of the γ -transitions and non-identified conversion-lines which are not connected with the ground-rotation-band of Yb^{171} are produced in the discharge of these excitation-states. The conversion-lines corresponding to the $h\nu = 11,3$ (m-shell) and $26,2$ keV (L-, M- and N-shells) were observed in the Lu^{171} -spectrum by

Card 2/3

On the Decay-Scheme of Lu¹⁷¹

48-12-3/15

I.M.Rogachev (State University Leningrad) with the aid of a
Pens-spectrometer. The M-11,3 line is badly visible, as it lies
near the Auger-electron-lines L-MM and L-NN. There are 1 figure,
1 table, and 5 references, 4 of which are Slavic.

ASSOCIATION: Radium Institute im. V. G. Khlopina AS USSR
(Radiyevyy institut im. V.G.Khlopina, Akademiya nauk SSSR)

AVAILABLE: Library of Congress

Card 3/3

D. MITRIYEV, A. G.

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G.,
Preobrazhenskiy, B. K. 48-22-2-5/17

TITLE: On the Decay of $\text{Nd}^{140} \rightarrow \text{Pr}^{140} \rightarrow \text{Ce}^{140}$
(O raspade $\text{Nd}^{140} \rightarrow \text{Pr}^{140} \rightarrow \text{Ce}^{140}$)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958,
Vol. 22, Nr 2, pp. 153 - 157 (USSR)

ABSTRACT: At first a survey on the data hitherto published is given
and inconsistencies are pointed out. For this reason the in-
vestigations of the $\text{Nd}^{140} + \text{Pr}^{140}$ -radiation were repeated.
The neodymium fraction was here chromatographically separated
from a tantalum target irradiated with fast protons ($E_p = 660 \text{ MeV}$).
It was found that after 120 hours the preparation contains
nothing but Nd^{140} . The electron radiation accompanying the
decay of Nd^{140} and Pr^{140} was investigated by means of a
magnetic β -spectrometer of the "ketron"-type. The positron-
spectrum in the range of $0.4 \pm 3 \text{ MeV}$ and the electron-spect-
rum in the range of $12 \pm 150 \text{ keV}$ were investigated. The
activity of the preparation was not high. On the basis of the

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On the Decay of $\text{Nd}^{140} \rightarrow \text{Pr}^{140} \rightarrow \text{Ce}^{140}$

48-22-2-5/17

results in the investigation of the positron spectrum the Curie diagram was constructed. Above 750 keV the latter was linear. The limit energy of the positron spectrum is equal to 2470 keV. The Auger electron lines K-2L and K-LM were discovered in the electron spectrum. The half width of these groups of lines was 9 and 7 %. Other electron-lines were not observed. Under the same conditions as in the case of Nd^{140} the Tu - and Lu -isotopes were investigated here (Refs 11, 12). In some of the isotopes γ -transitions with about 80 keV were determined. The K-conversion lines of these transitions have an energy of about 20 keV. The K-line usually was widened by 1,5 - 2 %. The e_K/β^+ -value here obtained for Nd^{140} Pr^{140} (error not above 30 %) can either be used for the determination of the emission of the K-series of Auger-electrons or for the determination of the β^+/K_Σ values. There are 4 figures, 1 table, and 12 references, 2 of which are Soviet.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
(Radium Institute imeni V. G. Khlopin AS USSR)

AVAILABLE: Library of Congress
Card 2/2

1. Neodymium-Decay-Determination
2. Praseodymium-Decay-Determination
3. Cerium-Decay-Determination

24(5),21(7)

AUTHORS:

Brabets, V., Gromov, K. Ya., SOV/48-23-7-4/31
Dzhelepov, B. S., Dmitriyev, A. G., Morozov, V. A.

TITLE:

Conversion Electrons of Yb^{166} and Tl^{166} (Konversionnyye elekt-
rony Yb^{166} i Tl^{166})

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 7, pp 812-818 (USSR)

ABSTRACT:

The spectrum of the conversion electrons of the decay

$\text{Yb}^{166} \xrightarrow[60\text{sec}]{K} \text{Tl}^{166} \xrightarrow[7,7\text{hr}]{K} \text{Er}^{166}$ (stable) was investigated by an
improved magnetic β -spectrometer. The obtaining of the isoto-
pes Yb^{166} and Tl^{166} carried out in Leningrad is described in
short. The first part of this paper deals with the conversion
electrons of Tl^{166} . As Tl^{166} has the daughter isotope Yb^{166} ,
three types of preparations were investigated: 1) The thulium
fraction obtained by means of chromatographic separation from
the rare earths. 2) The ytterbium fraction obtained by means
of chromatographic separation from rare earth elements. 3)
A thulium preparation separated from the ytterbium fraction

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Conversion Electrons of Yb^{166} and Tl^{166}

SOV/48-23-7-4/31

20 hours after the chromatographic separation. The results of the measurements are compiled in table 1, and it becomes clear that the spectrum of the conversion electrons of

Tl^{166} in most cases agrees with the ytterbium fraction. It is pointed out that the value of these results depends on the evaluation of the limiting intensity of the β -rays. Figure 1 shows the spectrum of the conversion electrons of the isotope

Tl^{166} in the range of 10-185 kev of the thulium preparation separated from the ytterbium fraction. All intensities have a half-life of eight hours. Table 1 compares the experimentally determined ratios of the intensities of the K- and L- conversion lines with the theoretical ratios. The second part investigates the conversion electrons of the isotope

Yb^{166} , and it is ascertained that the ratios of the intensities of the K- and L-conversion lines of the γ -transition of 80 kev strongly differ. The papers by V. N. Pokrovskiy (Ref 8) and Ye. P. Grigor'yev are mentioned here. Further it was ascertained that a γ -transition with the energy of 81.0 kev takes place in the decay $\text{Yb}^{166} \rightarrow \text{Tl}^{166}$, and one with

Card 2/3

Conversion Electrons of Yb¹⁶⁶ and Tu¹⁶⁶

SOV/48-23-7-4/31

79.4 keV in the decay $Tu^{166} \rightarrow Er^{166}$. Finally, the intensity of the K-2L-Auger-electrons is investigated with the aid of the diagrams (Figs 1 and 4), and it is ascertained that the data obtained are in good agreement with the data known from publications. There are 4 figures, 3 tables, and 12 references, 5 of which are Soviet.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
(Radium Institute imeni V. G. Khlopin of the Academy of Sciences, USSR)

Card 3/3

S/048/60/024/03/03/019
B006/B014

AUTHORS: Gromov, K. Ya., Dzhelepov, B. S., Dmitriyev, A. G.,
Morozov, V. A., Yakovlev, K. I.

TITLE: Conversion Electrons¹¹ and Gamma Rays of Tu^{165}
79 79

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960,
Vol. 24, No. 3, pp. 272-277

TEXT: The article under review was read at the Tenth All-Union Conference on Nuclear Spectroscopy (Moscow, January 19 - 27, 1960). The authors studied the spectrum of the conversion electrons of Tu^{165} by means of a magnetic spectrometer of the type "Ketron". The relative half-width of the lines was 0.4 per cent, the light intensity of the instrument was 0.4 per cent. The γ -ray spectrum was taken by means of a γ -scintillation spectrometer. The half-width of the 661-keV Cs^{137} line was 12 per cent. In order to obtain Tu^{165} tantalum was bombarded with 660-MeV protons for 4 hours on the synchrocyclotron of the Ob'yedinennyi institut yadernykh issledovaniy (Joint Institute of Nuclear Research) at Dubna. Then, the

VB

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Conversion Electrons and Gamma Rays of
 Tu¹⁶⁵

S/048/60/024/03/03/019
 B006/B014

resulting elements were separated chromatographically. The conversion-electron spectrum was studied in the range 85 - 1,200 kev. The spectra obtained are illustrated in Figs. 1 - 3. Each spectral region was taken three times every 25 - 35 hours. Thus, it was possible to distinguish the lines of Tu¹⁶⁵ from the lines of other isotopes. The intensity of the lines was measured relative to the K-243 intensity. The resulting data permitted the identification of the following new γ -transitions: 279.0, 312.1, 366.0, (378.4), 389.4, 457.2, 460.4, 471.6, 488.2, (543.5), 566.0, 807.1, 1,133, 1,179, and 1,187 kev. Table 1 lists all data on the conversion-electron spectrum (E_e , H_e , relative intensity, identification, E_γ). The γ -spectrum obtained is shown in Fig. 4. The following γ -lines were recorded: (219.240), 296, 350, 450, 540, 810, and 1,170 kev. The relative intensities of these lines are compiled in Table 2. There are 4 figures, 2 tables, and 12 references, 6 of which are Soviet.

Card 2/2

✓B

MEHELADZE, B. S.; DMITRIYEV, A. G.; ZHUKOVSKIY, N. N.; MALOYAN, A. G.

"New Data on the Gamma Spectrum of Eu^{152} ($t_{1/2} = 12.3 \text{ y}$)."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Radiyevyy Inst (Radium Inst)

L 31298-66 EWT(m)

ACC NR: AP6022571

SOURCE CODE: UR/0048/66/030/003/0394/0402

AUTHOR: Dabalapov, B. S.; Dmitriyev, A. G.; Zhukovskiy, N. N.; Malovan, A. G.

ORIG: none

TITLE: Gamma radiation of Eu sup 156 in the 600 to 2400 kev range

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 3, 1966, 394-402

TOPIC TAGS: gamma radiation, gamma spectrum, europium, spectrometer, neutron irradiation, electron spectrum, radioactive decay scheme, gamma transition

ABSTRACT: In continuation of previous work the gamma spectrum of Eu¹⁵⁶ was studied in the energy range of 600 to 2400 kev with a magnetic spectrometer. An enriched sample of Eu¹⁵³ was irradiated with thermal neutrons (2×10^{14} cm⁻²/sec) for 1000 hours, then aged 200 days. The Eu¹⁵⁶ spectrum was obtained by subtracting the spectrum of Eu¹⁵²⁺¹⁵⁴. The recoil electron spectrum is plotted for the entire range of energies and the most probable decay scheme is shown in a figure. Results of measured relative gamma-ray intensities are compared with those of other authors. Methods used are shown to be more accurate than those of other authors. Four new gamma transitions are introduced: $h\nu = 907, 943, 1028,$ and 1686 kev. The schemes for these transitions are discussed.

The authors thank V. F. Rodionov and T. I. Sidorova for assistance in making the measurements. Orig. art. has: 2 figures and 2 tables. [SPRS]

SUB CODE: 18,20/SUBM DATE: none/ ORIG REF: 004/ OTH REF: 007

Card 1/1 CC

0915

0685

REF ID: A7002794
ACC NR: A7002794

SOURCE CODE: UK/0048/66/030/003/1265/1276

AUTHOR: Bakhalepov, B. S.; Dmitriyev, A. G.; Zhukovskiy, N. N.; Maloyan, A. G.
ORG: none

TITLE: Gamma spectrum of Eu sup 154

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 8, 1966, 1265-1276

TOPIC TAGS: gamma radiation, gamma transition, gamma spectrum

ABSTRACT: γ -radiation of Eu^{154} was investigated with the aid of a magnetic spectrometer. All the isolated γ -lines of Eu^{154} and their relative intensities were tabulated. Altogether, 32 γ -lines were detected in the region $h\nu > 200$ kev, of which only 14 lines had been previously known. The conversion coefficients for transitions to Gd^{154} can be determined by utilizing the data on the relative intensities of the K-conversion and γ -lines accompanying the decay of Eu^{154} on condition that the conversion coefficient of at least one transition is known. The scheme of Gd^{154} levels is complemented with two new levels with the energies 1617 and 1663 kev. The first level is deexcited by three transitions $h\nu = 1493, 1248, \text{ and } 516$ kev to the levels $2^+, 2^+, \text{ and } 4^+$ with the energies 123, 371, and 998 kev respectively. The level with 1663-kev energy makes it possible to place the observed γ -transitions having energies of 1539, 847, and 616 kev: they are arrayed between this level and the levels $2^+, 2^+, \text{ and } 4^+$ with the energies of 123, 371, and 1049 kev

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ACC NR: AP7002794

respectively. The balance of intensities of δ -transitions with respect to Gd¹⁵⁴ levels was utilized to determine the percentile ratio of the β -components of Eu¹⁵⁴ and to calculate the values of log ft, which were found to be anomalously high. Orig. art. has: 7 Figures 2 formulas and 3 tables. [JPRS: 39,040]

SUB CODE: 20 / SUMM DATE: none / ORIG REF: 004 / OTH REF: 014

DMITRIYEV, Anatoliy Ivanovich; CHERNOV, Ye., red.; PAVLOVA, S.,
tekh.n.red.

[In our brigade] V nashei brigade. Moskva, Mosk.rabochii,
1960. 37 p. (MIRA 13:10)

1. Brigadir slesarey Mytishchinskogo mashinostroitel'nogo zavoda
(for Dmitriyev).
(Mytishchi--Machinery industry) (Socialist competition)

MALAKHOV, P.Ye.; MOLOTOK, A.V.; DMITRIYEV, A.I.; GORBATENKO, A.I.; IONOVA, Ye.P.; BARANOV, B.A., inzh., red.; DOBRITSYNA, R.I., tekhn. red.

[General time norms used in machinery manufacturing for establishing machine-work norms in woodworking shops; mass, large lot, and lot production] Obshchemashinostroitel'nye normativy vremeni dlia normirovaniia stanochnykh rabot v derevoobrabatyvaiushchikh tsekhakh; massovoe, krupnoseriinoe i seriinoe proizvodstvo. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 78 p.
(MIRA 14:10)

1. Moscow. Tsentral'noye byuro promyshlennykh normativov po trudu.
2. Nauchno-issledovatel'skiy institut tekhnologii traktornogo i sel'skokhozyaystvennogo mashinostroyeniya (for Malakhov, Molotok, Dmitriyev, Gorbatenko, Ionova).
(Machinery industry) (Woodworking)

DMITRIYEV, Aleksandr Ivanovich; LAMAGINA, G.K., ed.; ZHUKOVA, Ye.G.,
tekhn. red.

[Statistics of agricultural production] Statistika produktsii
sel'skogo khoziaistva. Leningrad, Izd-vo Leningr. univ., 1962.
73 p. (MIRA 15:3)

(Agriculture--Statistics)

ORTENBERG, F.S.; GLASKO, V.B.; DMITRIYEV, A.I.

Probabilities of vibrational transitions for band systems of some
diatomic oxides. Part 2. Astron.zhur. 41 no.2:332-335 Mr-Apr
'64. (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektromekhaniki i
Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.

DMITRIYEV, A. I.: (Lecturer, Candidate of Veterinary Sciences)

Treatment of surgical diseases in horses with sea mud.

Department of Surgery

V.N. Cheredkov, Lecturer, Candidate of Veterinary Sciences -
Head of the Department

SO: Collection of Scientific Works, Leningrad Inst. for Advancement of Veterinarians, Ministry of Agriculture USSR. State Agricultural Publishing House, 1950.

DMITRIYEV, A. I.,

Non-contagious diseases of agricultural animals; prevention and treatment, Moskva,
Gos. izd-vo selkhoz lit-ry, 1951.

SO: MLRA April 1952.

DMITRIYEV A. I.

DMITRIYEV, Aleksey Ivanovich.

Leningrad Agricultural Inst. Academic degree of Doctor of Veterinary Sciences, based on his defense, 3 March 1955, in the Council of the Leningrad Veterinary Inst, of his dissertation entitled: "Materials on the Pathology of Spontaneous and Experimental Brucellosis of Large Horned Cattle."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 14, 11 June 55, Byulleten' MVO SSSR, No. 15, Aug 56, Moscow, pp. 5-24, Uncl. JPRS/NY-537

CATEGORY : Diseases of Farm Animals.
 Disease Caused by Bacteria and Fungi.
 RS. JOUR. : RZhBiol., No. 3, 1959, No. 12144
 AUTHOR : Deigunov, A. I.
 : Conduct of Bacteriologic Researches on the
 : Immune Reaction of Pig.
 RIG. PUB. : Sb. tr. Leningr. n.-i. vat. in-t, 1954,
 vyp. 6, 67-78
 BSTRAC : It was determined that there changes are
 characterized by acute, subacute and chronic
 inflammations as well as by a reaction of in-
 ternal work the pronounced cell (bacterio-
 endotoxin) reaction. When the bru-
 cellosis process becomes more acute and soon
 after abortion, exudative changes are obser-
 ved to prevail as well as proliferative and
 necrotic changes; if brucellosis takes a
 subacute-chronic course, nodular lesions with
 a central necrosis and encapsulation as well
 and: 1/3
 *Institute.

COUNTRY : USSR
CATEGORY :

BS, JOUR. : RZhBiol., No. 1959, No.

AUTHOR :
J.S. :
TITLE :

ORIG. PUB. :

ABSTRACT : as with an impairment of the organs' wall
blood-carrying vessels etc. etc. Post legi-
cal for brucellosis in pigs are changes of the
nodular type which were discovered in the major-
ity of sick pigs and also inflammatory changes
of the vascular system which sometimes present
phenomena of a distinctly marked degeneration
of vascular walls. In the 21 pigs which were
thoroughly studied, predominantly encapsulated
nodules and sub-miliary macroscopically seen

ARD: 2/3

DOCUMENT :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1959, No.

AUTHOR :
TITLE :
JOURNAL :

ORIG. PUB. :

ABSTRACT : granulation growths were discovered in the liver of 13 pigs, in the lymphatic nodes of 9, in the kidneys of 7, in the suprarenal gland of 5, in the lungs of 5, in the spleen of 4, and in the uterus of 4 pigs. In pigs which were slaughtered 3-4 days after abortion, lesions of the somatic and vegetative nervous system's nerve ganglions as well as changes pertaining to the nature of polyneuritis and radiculitis were discovered. -- A. D. Musin

Card: 3/3

DMITRIYEV, A.I.

USSR/Diseases of Farm Animals - Diseases Caused by Bacteria
and Fungi.

R-2

Abs Jour : Dmitriev, A.I.

Inst : Leningrad Scientific Research Institute of Veterinary
Sciences.

Title : Results of Pathological Anatomy Studies of Spontaneous and
Experimental Brucellosis in Large Horned Cattle.

Orig Pub : Sb. tr. Leningr. n.-i. vet. in-t, 1956, vyp. 6, 79-86.

Abstract : It was demonstrated that initial brucelli induction sensi-
tizes the organism of healthy animals, changes their immu-
nological reactivity, and causes extensive morphological
modifications of various organs and tissues, especially in
pregnant cows. Reinfection leads to a sharp activation of
the process, accompanied by considerable modifications at
the site of the repeated inoculation and by distinct gene-
ral reactions. Premature calving and abortions are

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USSR/Diseases of Farm Animals - Diseases Caused by Bacteria
and Fungi.

R-2

Abs Jour : Ref Zhur - Biol., No 11, 1958, 50157

apparently allergy symptoms caused by reinfections of the sensitized organism. High sensitivity of the nervous system to the brucellosis agent is noted. The pathological process may involve all sections of the nervous system; however, neurons of the spinal nerve ganglions become impaired earlier and deeper than other sections. During pregnancy the reactivity of the organism to brucellosis increases considerably. -- I.N. Mikhailov.

Card 2/2

DMITRIYEV, A.I., doktor veterinarnykh nauk; KITAYEVICH, Ye.I., veterinarnyy
vFach.

Etiology of bronchial pneumonia in swine after plague inoculation by crystal violet vaccine. Veterinariia 33 no.3:51-52
Mr '56. (MLRA 9:5)

1. Leningradskiy sel'skokhozyaystvennyy institut.
(PNEUMONIA) (HEMORRHAGIC SEPTICEMIA)

MOLOTOV, A.V.; DMITRIYEV, A.I.; GORBATENKO, A.I.; SHAROYAN-SARINGULYAN, G.P.; MALAKHOV, P.Ye.; KRIVOUKHOV, V.A., doktor tekhn.nauk, red.; GRANOVSEIY, G.I., prof., doktor tekhn.nauk, red.; TRET'YAKOV, I.P., prof., doktor tekhn.nauk, red.; ALEKSEYEV, S.A., dotsent, red.; MALOV, A.N., dotsent, kand.tekhn.nauk, red.; SHAKHNAZAROV, M.M., dotsent, red.; VOL'SKIY, V.S., red.; GAL'TSOV, A.D., red.; KABANOV, N.Ya., red.; TOLCHENOV, T.V., red.; KHARITONOV, A.B., red.; KHISIN, R.I., red.; SHOR, M.I., red.; SEMENOVA, M.M., red. izd-va; EL'KIND, V.D., tekhn.red.

[Time norms in general machinery manufacturing for applying coats of lacquer; large, medium, and small scale production]
Obshchemashinostroitel'nye normativy vremeni na lakokrasochnye pokrytiya; krupnoseriynoe, seriynoe i melkoseriynoe proizvodstvo. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1959. 83 p. (MIRA 12:6)

1. Moscow. Nauchno-issledovatel'skiy institut truda. Tsentral'-noye byuro promyshlennykh normativov po trudu. 2. Rabotniki otdela trudovykh normativov Nauchno-issledovatel'skogo instituta traktore-sel'khozmashta (for Molotov, Dmitriyev, Gorbatenko, Sharoyan-Saringulyan, Malakhov).

(Painting, Industrial)

(Machinery industry)

IVANOV, K.V.; DMITRIYEV, A.I.

Changes in the activity of carbonic anhydrase during acute radiation
sickness. Radiobiologiya 1 no.5:684-689 '61. (MIRA 14:11)

(CARBONIC ANHYDRASE)

(X RAYS--PHYSIOLOGICAL EFFECT)

IVANOV, K.V.; DMITRIYEV, A.I. (Leningrad)

- Changes in alkaline reserve and carbonic dehydrogenase activity of the blood in acute radiation sickness. Pat.fiziol. i eksp. terap. 5 no.3:73-74 My-Je '61. (MIRA 14:6)
(RADIATION SICKNESS) (ACID BASE EQUILIBRIUM)
(DEHYDROGENASE)

IMUTRIYEV, A.I.

[Non-infectious diseases of agricultural animals: 1. raznye bolezni sel'skokhoziaistvennykh zhivotnykh. Kyiv: grad. Kolos, 1964. 231 p. (MIR 08.10)

DMITRIYEV, A.K.

Using the tracklaying machine for the exchange of switches.
Put' i put.khoz. 6 no.1176 '62. (MIRA 16:1)

1. Starshiy inzh. putevoy mashinnoy stantsii No.2 st.Abagur-
Lesnoy, Zapadno-Sibirskoy dorogi.
(Railroads—Tracklaying machinery)
(Railroads—Switches)

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESS AND PROPERTIES INDEX																			
Summary of the scientific research work of the Institute of Plant Protection for the year 1936. III. Viruses and bacteriophages, biological method, chemical method and mechanization. Lenin Acad. Agr. Sci., Leningrad 1938, 111 pp. (in Russian). Chemical methods of controlling pests and diseases of crop plants. Adsorptive sulfur preparations. B. N. Dashkevich and A. K. Dmitriyev. Ibid. 78-81.—Expts. on tetranychid mites showed that S adsorbed on carriers evapd. slowly, and that the carrier was of no importance in the toxic action. Further tests showed that evapd. of S occurred in the absence of O or moisture, but the presence of moisture greatly accelerated it, and that different forms of S differed in toxicity to the mites, amorphous S being one of the least toxic. For this reason natural S is more effective than sublimed S, as the former conducts chiefly of rhombic S, while 40% of the latter is amorphous. Improvement of ultra-sulfur preparations. P. V. Sazonov. Ibid. 81-3.—Field expts. were carried out in Uzbekistan, dusts of ultra-S (contg. 15% S as a fine dust adsorbed on a carrier) alone or with the addn. of 7, 9 or 11% of spindle oil being applied at 45-54 lb./acre to plants infested with a red spider [Tetranychus]. Best results were obtained with the addn. of 9% oil. In the plot dusted with ultra-S alone, the no. of mites per leaf on the day before application and 3, 8 and 12 days afterward averaged 3.82, 2.58, 2.17 and 2.65, resp., as compared with 3.46, 1.72, 1.31 and 0.87 in the plot treated with S and 9% oil. In the untreated controls, the nos. were 3.12, 3.38, 3.08 and 3.77. Comparative																			
resistance of insects to hydrogen cyanide. R. A. Skryabin. Ibid. 83-6.—Expts. in which insects were exposed to HCN at a concn. of 5 mg./l. showed that the min. exposures in hrs. which caused complete mortality within 24 hrs. were 1 for <i>Agrostis elni</i> L., <i>Chrysomela fastuosa</i> Scop. and 5th-instar hoppers of <i>Locusta migratoria</i> L.; 3 for 2nd-instar larvae of <i>Malolontha</i> sp. and 6 for 5th-instar larvae of <i>Agrostis (Euxoa) segatum</i> Schiff. The percentage mortalities of <i>Calandra granaria</i> L. and 5th-instar larvae of <i>Pieris brassicae</i> L. given by 6 hrs. exposure were 14 and 58, resp., and when the concn. was doubled were 47 and 100, resp. The coeffs. of resistance were calcd. The min. periods in which paralysis occurred in all fumigated individuals (stupor time) were 15 sec. for <i>Agrostis</i> and <i>Malolontha</i>, 30 sec. for <i>Chrysomela</i> and <i>Agrostis</i>, 1 min. for <i>Calandra</i> and 2 min. for <i>Locusta</i> and <i>Pieris</i>. The durations of paralysis (the intervals between fumigation and complete recovery) were 10 hrs. for <i>Locusta</i>, 12 hrs. for <i>Agrostis</i> and <i>Pieris</i>, and 3 days for <i>Calandra</i>, <i>Malolontha</i> and <i>Chrysomela</i>. The effect on plants of fluorine and fluorosulfate insecticides. A. G. Toshchikov. Ibid. 80-8.—Expts. on apple, apricot and peach showed that solns. of fluorides or fluorosulfates, es-																			
ASH-51A DETAILING LITERATURE CLASSIFICATION																			

1 specially Na_2SiF_6 and BaSiF_6 , when introduced through the membrane of the protoplasm by injection, caused visible injury more rapidly than Na arsenate. When the insecticides were introduced through the epidermis of the leaves, the reverse occurred. A measurement of the electric charge of dust insecticides and its effect on the efficiency of preparations. S. D. Bolikov. *Ibid.* 88-91.

2 The relative adhesiveness of Na_2SiF_6 dusts mixed with viscous org. substances or various mineral carriers was found to vary directly with the elec. charge of the dust, viscosity and elec. cond. were in inverse proportion and adhesiveness was increased by the addn. of the org. substances and decreased by the mineral carriers. No relation was observed between adhesiveness and the elec. charge in Na_2SiF_6 mixed with soaps, or between elec. charge and toxicity. Technical effectiveness of pyrethrum extracts prepared by means of hot extraction. G. V. Blyumberg. *Ibid.* 91-3.

3 During storage pyrethrum flowers lose 30-43.6% of their toxicity in a yr., owing to reduction of the pyrethrin content. Pyrethrum exts. do not lose their effectiveness during storage, but when prepd. by the cold method of Gnadinger and Cori (C. A. 27, 4620), 0.03-0.05% of the pyrethrins remain in the flowers. Intests of estn. by a hot method it was shown that the pyrethrins were sufficiently thermostable, and that 100% extn. of pyrethrin I from the flowers was obtained in 6-8 hrs. In field expts. on spraying with exts. in various dilns. with H_2O , with or without the addn. of soap, against the spiders (*Tetranychus*) on cucumber and against larvae

of *Pieris brassicae* L. on cabbage, the best results were obtained with an ext. contg. 3% of pyrethrin I which, used at dilns. of 0.03 and 0.07% in 1.5% soap soln., killed 93% of the larvae of *P. brassicae* and 99% of the mites, resp. Can pyrethrum be used as a stomach insecticide? A. K. Voskresenskaya. *Ibid.* 93-5.

4 Fifth-instar larvae of *Agrotis (Excoea) segetum* Schiff., *Pieris brassicae* L., *Lymantria (Porithria) dispar* L., and *Locusta migratoria* L. were fed on leaves dusted with pyrethrum contg. 1.48% pyrethrin I, or a mist of kieselguhr and pyrethrum contg. 1% pyrethrin I. From 8 to 10 min. after feeding, regurgitation and spasmodic contractions of the body lasting 4-6 hrs. were evident, followed by a period of quiescence and then recovery the next day. Injection into the body cavity of 2 drops of a soln. contg. pyrethrum at 0.0005 mg. pyrethrin I caused spasmodic reactions of the sphincters and foregut, this resulted in regurgitation and voiding of excreta. V. concludes that pyrethrum is not an effective stomach poison. Through *Riv. Applic. Entomol.* 27A, 302-10. Edwin J. Selferle

DMITRIYEV, A. K.																									
PROCESSING AND PREPARATION INDEX																									
A new sulfur preparation "E." A. K. Dmitriyev, <i>Plant Protection</i> (U. S. S. R.) 1938, No. 10, 4213. (in English, 95); cf. C. A. 34, 4213. The new sulfur prep. "E" is made by heating to 160° an intimate mixt. of S with de-aerated clay passed through a sieve of 6400 meshes per sq. cm. The S content may range from 5 to 25%. Chem. tests on preps. of pure S and of ultra-S, of adsorbed-S preps., and of the "E" prep., showed that the "E" prep. has the highest active surface, 7-11 times that of pure S and 3-4 times that of ultra-S. Lab. toxicological tests with red spider confirmed the correctness of the evaluation of the "E" prep., as established by chem. tests. The "E" prep. is simpler to prepare than are adsorbed-S preps., and the raw material is easier to obtain. Six references and 2 tables are given. W. R. Hemm																									
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																									

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DMITRIEV, A.K.

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A. K. Dmitriev, The chemical heterodynamics of hydrogen at the moment of liberation.
P. 1267.

Hydrogen is chemically heterodynamic at the moment of liberation and its activeness depends on the nature of the metal which is dissolving in the acid; on account of this, the reduction ability of the hydrogen may be in one case hundreds of times greater than in another.

Chemical Lab. of the Leningrad Molotov
Technological Institute

December 6, 1946.

SO: Journal of General Chemistry (USSR) 18. (80) No. 7 (1948)

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Chemical nonequivalence of hydrogen at the moment of its evolution. H. A. K. Dmitriyev (V. M. Molotov Tech. Inst., Leningrad); *Zhur. Obshchei Khim.* (J. Gen. Chem.) 22, 515-51 (1952); cf. C.A. 44, 7631b.—Expts. on reduction of different colored compds. by the H_2 evolved in the soln. of metals in HCl showed reproducibly that the decoloration of the same amt. of the colored compd. requires different amts. of dissolved metals; this confirms the conclusion previously drawn about the chem. nonequivalence of the H_2 evolved by soln. of different metals in acids. As an example, the following vols. (ml.) of soln. (of the stated concn.) of colored compds. could be decolorized by soln. of $1/100$ g.-equiv. of metal (Mg, Zn, Al, Mn, Cd, Fe, Co, Ni) in 1:1 HCl: methyl red (satd. 1 g./l.) 3, 11, 60, 54, 36, 250, 410, 875; methylene blue (1.8 g./l.) 3.5, 13, 138, 100, 100, 225, 300, 465; pyronine (1.6 g./l.) 2.5, 10, 58, 30, —, 60, 221, 300; indigo-caruline (1 g./l.) 2.5, 10, 70, 45, —, 60, 160, 300; KCNS 2, 30, 50, 54, 80, 125, 400, 750. In these expts., too, the amt. of org. compd. reduced by a given amt. of H_2 differed according to the metal used, with Mg and Zn, and Co and Ni, occupying extreme positions in the series of increasing effectiveness of the H_2 evolved. With a given metal, the effectiveness of the H_2 increases with decreasing acidity or alkalinity; e.g., with methyl red, and Zn in HCl 4, 3, 2, and 1 N, the necessary amts. of Zn were 1.97, 1.3, 0.8, and 0.6 g.; with Al (90) Ni (10%) in NaOH 0.8, 0.4, 0.2, 0.1 N, the necessary amts. of AlNi were 0.37, 0.32, 0.3, 0.28 g. The following data give the amts. in g., of metal or

alloy (Al, Al 90 Ag 10%, Al 91 Ni 10%, Al 90 Cu 10%, Al 90 Co 10%, Al 90 Ta 10%, Al 90 Sb 10%, Zn, Zn 94 Cd 6%) necessary to decolorize the stated vol. of soln., in HCl or NaOH: 450 ml. satd. methyl red + 50 ml. HCl 1:1, 0.19, 1.9, 0.1, 0.35, —, —, 0.2, 1.0, 0.17; 450 ml. satd. methylene blue (1.8 g./l.) + 50 ml. HCl 1:1, 0.12, 0.4, 0.1, 0.22, —, —, 0.13, 0.13, 1.5, 0.43; 30 ml. satd. methyl red + 10 ml. NaOH 2 N, 0.2, 0.34, 0.05, 0.3, 0.1, 0.18, 0.2, —, —; 200 ml. KMnO₄ 0.001 N + 40 ml. NaOH 2 N, 0.18, 0.28, 0.08, 0.2, 0.08, 0.14, 0.2, —, —. In all cases Cu and, particularly, Ag lower the effectiveness of the H_2 . This finding parallels the well-known detrimental effect of Cu and Ag content in the cathode in electrolytic reduction. Co and, particularly, Ni enhance the effectiveness of the evolved H_2 . A series of expts. was made with Zn uncoated and coated, by displacement, with Ag, Au, Cd, Hg, Pb, Sb, Bi, Pt, Pd. The amts. of Zn metal necessary to reduce a given amt. of methyl red, were (in the above order) 2, 2.6, 3.6, 0.4, 0.3, 0.5, 0.5, 1.2, 0.12, 0.035; with Al, uncoated and coated, 0.03, —, 0.16, —, 0.04, 0.034, 0.013, 0.02, 0.01, 0.01. If increasing amts. of AuCl₃ are added to the Pd soln. used for the coating of Zn, the activating effect of the Pd becomes gradually paralyzed, on account of the antagonistic effect of Pd and Au. If the activities of the H_2 evolved by different metals are recorded in the periodic system, it is found that in each row the activity increases towards higher groups.

N. Thon

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